

Report Date:  
03-Aug-17 12:08

## Laboratory Report SC37118

Gulf Oil L.P.  
281 Eastern Avenue  
Chelsea, MA 02150  
Attn: Andrew P. Adams

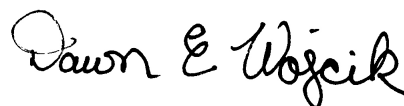
Project: Gulf Terminal - Chelsea, MA  
Project #: Gulf Chelsea

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.  
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110  
Connecticut # PH-0777  
Florida # E87936  
Maine # MA138  
New Hampshire # 2972/2538  
New Jersey # MA011  
New York # 11393  
Pennsylvania # 68-04426/68-02924  
Rhode Island # LAO00348  
USDA # P330-15-00375  
Vermont # VT-11393



Authorized by:  
Dawn Wojcik  
Laboratory Director



Eurofins Spectrum Analytical holds primary certification in the State of Massachusetts for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of Massachusetts does not offer certification for all analytes. Please refer to our website for specific certification holdings in each state.  
Please note that this report contains 11 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Eurofins Spectrum Analytical, Inc.

*Eurofins Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Eurofins Spectrum Analytical, Inc. is currently accredited for the specific method or analyte indicated. Please refer to our Quality web page at [www.spectrum-analytical.com](http://www.spectrum-analytical.com) for a full listing of our current certifications and fields of accreditation. States in which Eurofins Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey, Pennsylvania and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (PA-68-04426).*

*Please contact the Laboratory or Technical Director at 800-789-9115 with any questions regarding the data contained in this laboratory report.*

Sample Summary

Work Order: SC37118  
Project: Gulf Terminal - Chelsea, MA  
Project Number: Gulf Chelsea

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SC37118-01	Outfall 003	Surface Water	13-Jul-17 09:15	18-Jul-17 17:17

**CASE NARRATIVE:**

Data has been reported to the RDL. This report excludes estimated concentrations detected below the RDL and above the MDL (J-Flag).

All non-detects and all results below the reporting limit are reported as "<" (less than) the reporting limit in this report.

The samples were received 2.1 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

Analyses for Total Hardness, pH, and Total Residual Chlorine fall under the state of Pennsylvania code Chapter 252.6 accreditation by rule.

**August 3, 2017 Report Revision Case Narrative:**

This report has been revised to update the analyte list for 8270 not previously reported.

**See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.**

**SW846 8260C****Calibration:**

1707018

---

Analyte quantified by quadratic equation type calibration.

Naphthalene

This affected the following samples:

1712490-BLK1  
1712490-BS1  
1712490-BSD1  
Outfall 003  
S706141-ICV1  
S706463-CCV1

**SW846 8270D SIM****Calibration:**

1704025

---

Analyte quantified by quadratic equation type calibration.

Benzo (a) pyrene  
Benzo (e) pyrene-d12

This affected the following samples:

1712432-BLK2  
1712432-BS2  
1712432-BSD2  
Outfall 003  
S703654-ICV1  
S706689-CCV1

## Sample Acceptance Check Form

Client: Gulf Oil L.P.  
Project: Gulf Terminal - Chelsea, MA / Gulf Chelsea  
Work Order: SC37118  
Sample(s) received on: 7/18/2017

*The following outlines the condition of samples for the attached Chain of Custody upon receipt.*

	<u>Yes</u>	<u>No</u>	<u>N/A</u>
Were custody seals present?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Were custody seals intact?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Were samples received at a temperature of $\leq 6^{\circ}\text{C}$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples refrigerated upon transfer to laboratory representative?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were sample containers received intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples properly labeled (labels affixed to sample containers and include sample ID, site location, and/or project number and the collection date)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples accompanied by a Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Does Chain of Custody document include proper, full, and complete documentation, which shall include sample ID, site location, and/or project number, date and time of collection, collector's name, preservation type, sample matrix and any special remarks concerning the sample?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Did sample container labels agree with Chain of Custody document?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Were samples received within method-specific holding times?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Summary of Hits

Lab ID: SC37118-01

Client ID: Outfall 003

Parameter	Result	Flag	Reporting Limit	Units	Analytical Method
Total Suspended Solids	91.7		1.7	mg/l	SM2540D (11)

*Please note that because there are no reporting limits associated with hazardous waste characterizations or micro analyses, this summary does not include hits from these analyses if included in this work order.*

Sample Identification

Outfall 003

SC37118-01

Client Project #

Gulf Chelsea

Matrix

Surface Water

Collection Date/Time

13-Jul-17 09:15

Received

18-Jul-17

<i>CAS No.</i>	<i>Analyte(s)</i>	<i>Result</i>	<i>Flag</i>	<i>Units</i>	<i>*RDL</i>	<i>MDL</i>	<i>Dilution</i>	<i>Method Ref.</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Analyst</i>	<i>Batch</i>	<i>Cert.</i>
<b>Volatile Organic Compounds</b>													
<u>Volatile Organic Aromatics by SW846 8260</u>													
<u>Prepared by method SW846 5030 Water MS</u>													
71-43-2	Benzene	< 1.0		µg/l	1.0	0.3	1	SW846 8260C	20-Jul-17	20-Jul-17	GMA	1712490	
91-20-3	Naphthalene	< 1.0		µg/l	1.0	0.4	1	"	"	"	"	"	
<i>Surrogate recoveries:</i>													
460-00-4	4-Bromofluorobenzene	102			70-130 %			"	"	"	"	"	
2037-26-5	Toluene-d8	101			70-130 %			"	"	"	"	"	
17060-07-0	1,2-Dichloroethane-d4	94			70-130 %			"	"	"	"	"	
1868-53-7	Dibromofluoromethane	103			70-130 %			"	"	"	"	"	
<b>Semivolatile Organic Compounds by GCMS</b>													
<u>SVOCs by SIM</u>													
<u>Prepared by method SW846 3510C</u>													
50-32-8	Benzo (a) pyrene	< 0.049		µg/l	0.049	0.020	1	SW846 8270D SIM	20-Jul-17	25-Jul-17	MSL	1712432	
91-20-3	Naphthalene	< 0.049		µg/l	0.049	0.021	1	"	"	"	"	"	
<i>Surrogate recoveries:</i>													
205440-82-0	Benzo (e) pyrene-d12	58			30-130 %			"	"	"	"	"	
<b>Extractable Petroleum Hydrocarbons</b>													
<u>Prepared by method SW846 3510C</u>													
	Oil & Grease	< 1.00	OG	mg/l	1.00	0.915	1	EPA 1664B	27-Jul-17	28-Jul-17	KK	1712912	X
<b>General Chemistry Parameters</b>													
	pH	6.20	pH	pH Units			1	ASTM D 1293-99B	19-Jul-17 09:55	20-Jul-17 15:13	TN	1712421	X
	Total Suspended Solids	91.7		mg/l	1.7	0.7	1	SM2540D (11)	19-Jul-17	20-Jul-17	CMB	1712373	X

*This laboratory report is not valid without an authorized signature on the cover page.*

# Volatile Organic Compounds - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b><u>SW846 8260C</u></b>										
<b>Batch 1712490 - SW846 5030 Water MS</b>										
<b><u>Blank (1712490-BLK1)</u></b>					<u>Prepared &amp; Analyzed: 20-Jul-17</u>					
Benzene	< 1.0		µg/l	1.0						
Naphthalene	< 1.0		µg/l	1.0						
Surrogate: 4-Bromofluorobenzene	50.2		µg/l		50.0		100	70-130		
Surrogate: Toluene-d8	50.8		µg/l		50.0		102	70-130		
Surrogate: 1,2-Dichloroethane-d4	46.6		µg/l		50.0		93	70-130		
Surrogate: Dibromofluoromethane	51.2		µg/l		50.0		102	70-130		
<b><u>LCS (1712490-BS1)</u></b>					<u>Prepared &amp; Analyzed: 20-Jul-17</u>					
Benzene	23.3		µg/l		20.0		116	70-130		
Naphthalene	20.6		µg/l		20.0		103	70-130		
Surrogate: 4-Bromofluorobenzene	51.0		µg/l		50.0		102	70-130		
Surrogate: Toluene-d8	51.2		µg/l		50.0		102	70-130		
Surrogate: 1,2-Dichloroethane-d4	47.7		µg/l		50.0		95	70-130		
Surrogate: Dibromofluoromethane	50.6		µg/l		50.0		101	70-130		
<b><u>LCS Dup (1712490-BSD1)</u></b>					<u>Prepared &amp; Analyzed: 20-Jul-17</u>					
Benzene	22.2		µg/l		20.0		111	70-130	5	20
Naphthalene	20.6		µg/l		20.0		103	70-130	0.1	20
Surrogate: 4-Bromofluorobenzene	50.9		µg/l		50.0		102	70-130		
Surrogate: Toluene-d8	50.8		µg/l		50.0		102	70-130		
Surrogate: 1,2-Dichloroethane-d4	47.0		µg/l		50.0		94	70-130		
Surrogate: Dibromofluoromethane	50.2		µg/l		50.0		100	70-130		

# Semivolatile Organic Compounds by GCMS - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b><u>SW846 8270D SIM</u></b>										
<b>Batch 1712432 - SW846 3510C</b>										
<b><u>Blank (1712432-BLK2)</u></b>					<u>Prepared: 20-Jul-17 Analyzed: 25-Jul-17</u>					
Benzo (a) pyrene	< 0.051		µg/l	0.051						
Naphthalene	< 0.051		µg/l	0.051						
<i>Surrogate: Benzo (e) pyrene-d12</i>	<i>0.469</i>		<i>µg/l</i>		<i>1.02</i>		<i>46</i>	<i>30-130</i>		
<b><u>LCS (1712432-BS2)</u></b>					<u>Prepared: 20-Jul-17 Analyzed: 25-Jul-17</u>					
Benzo (a) pyrene	<b>0.381</b>		µg/l	0.051	0.505		75	40-140		
Naphthalene	<b>0.244</b>		µg/l	0.051	0.505		48	40-140		
<i>Surrogate: Benzo (e) pyrene-d12</i>	<i>0.566</i>		<i>µg/l</i>		<i>1.01</i>		<i>56</i>	<i>30-130</i>		
<b><u>LCS Dup (1712432-BSD2)</u></b>					<u>Prepared: 20-Jul-17 Analyzed: 25-Jul-17</u>					
Benzo (a) pyrene	<b>0.383</b>		µg/l	0.051	0.510		75	40-140	0.5	20
Naphthalene	<b>0.247</b>		µg/l	0.051	0.510		48	40-140	1	20
<i>Surrogate: Benzo (e) pyrene-d12</i>	<i>0.561</i>		<i>µg/l</i>		<i>1.02</i>		<i>55</i>	<i>30-130</i>		



# Extractable Petroleum Hydrocarbons - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b><u>EPA 1664B</u></b>										
<b>Batch 1712912 - SW846 3510C</b>										
<b><u>Blank (1712912-BLK1)</u></b>					<u>Prepared: 27-Jul-17 Analyzed: 28-Jul-17</u>					
Oil & Grease	< 1.00		mg/l	1.00						
<b><u>LCS (1712912-BS1)</u></b>					<u>Prepared: 27-Jul-17 Analyzed: 28-Jul-17</u>					
Oil & Grease	<b>38.9</b>		mg/l	1.00	39.7		98	78-114		

## General Chemistry Parameters - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b><u>ASTM D 1293-99B</u></b>										
<b>Batch 1712421 - General Preparation</b>										
<b><u>Duplicate (1712421-DUP1)</u></b>										
pH	6.20		pH Units			6.20			0	5
<b><u>Reference (1712421-SRM1)</u></b>										
pH	5.98		pH Units		6.00		100	97.5-102.5		
<b><u>Reference (1712421-SRM2)</u></b>										
pH	6.02		pH Units		6.00		100	97.5-102.5		
<b><u>SM2540D (11)</u></b>										
<b>Batch 1712373 - General Preparation</b>										
<b><u>Blank (1712373-BLK1)</u></b>										
Total Suspended Solids	< 0.5		mg/l	0.5						
<b><u>LCS (1712373-BS1)</u></b>										
Total Suspended Solids	98.0		mg/l	10.0	100		98	90-110		

## Notes and Definitions

dry	Sample results reported on a dry weight basis
NR	Not Reported
RPD	Relative Percent Difference
OG	The required Matrix Spike and Matrix Spike Duplicate (MS/MSD) for Oil & Grease method 1664B can only be analyzed when the client has submitted sufficient sample volume. An extra liter per MS/MSD is required to fulfill the method QC criteria. Please refer to Chain of Custody and QC Summary (MS/MSD) of the Laboratory Report to verify ample sample volume was submitted to fulfill the requirement.
pH	The method for pH does not stipulate a specific holding time other than to state that the samples should be analyzed as soon as possible. For aqueous samples the 40 CFR 136 specifies a holding time of 15 minutes from sampling to analysis. Therefore all aqueous pH samples not analyzed in the field are considered out of hold time at the time of sample receipt. All soil samples are analyzed as soon as possible after sample receipt.

Laboratory Control Sample (LCS): A known matrix spiked with compound(s) representative of the target analytes, which is used to document laboratory performance.

Matrix Duplicate: An intra-laboratory split sample which is used to document the precision of a method in a given sample matrix.

Matrix Spike: An aliquot of a sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix.

Method Blank: An analyte-free matrix to which all reagents are added in the same volumes or proportions as used in sample processing. The method blank should be carried through the complete sample preparation and analytical procedure. The method blank is used to document contamination resulting from the analytical process.

Method Detection Limit (MDL): The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

Reportable Detection Limit (RDL): The lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes the RDL analyte concentration is selected as the lowest non-zero standard in the calibration curve. While the RDL is approximately 5 to 10 times the MDL, the RDL for each sample takes into account the sample volume/weight, extract/digestate volume, cleanup procedures and, if applicable, dry weight correction. Sample RDLs are highly matrix-dependent.

Surrogate: An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. These compounds are spiked into all blanks, standards, and samples prior to analysis. Percent recoveries are calculated for each surrogate.

Continuing Calibration Verification: The calibration relationship established during the initial calibration must be verified at periodic intervals. Concentrations, intervals, and criteria are method specific.

Page 1 of 1

SC37118 JV

☒ Standard TAT - 7 to 10 business days

☐ Rush TAT - Date Needed: \_\_\_\_\_

ALL TATs subject to laboratory approval  
Min. 24-hr notification needed for pushes  
Samples disposed after 60 days unless otherwise instructed

Andrew Adams

Quote/RQN: \_\_\_\_\_

Sampler(s):

13ICH02AS DIGIT 2-AM

State: MA

I1= none I2=

11	3
----	---

\* additional charges may apply

$$X_3 = \underline{\hspace{1cm}}$$

C=Composite

Type
Matrix

## Analysis

☐ MA DEP MCP CAM Report? ☐ Yes ☐ No  
☐ CT DRI RCP Report? ☐ Yes ☐ No  
☒ Standard ☐ No QC  
☐ \* ☐ DQA\*  
☐ ASP A\* ☐ ASP B\*  
☐ NJ Reduced\* ☐ NJ Full\*  
☐ Tier II\* ☐ Tier IV\*  
☐ Other \_\_\_\_\_  
 State-specific reporting standards

benzene 2 µg/L
naphthalene 5 µg/L

Temp °C

aadams@gulfoil.com, cgill@gulfoil.com

☐ Intact      ☐ Broken

Rev. Jan 2014

## Batch Summary

### **1712373**

#### **General Chemistry Parameters**

1712373-BLK1  
1712373-BS1  
SC37118-01 (Outfall 003)

### **1712421**

#### **General Chemistry Parameters**

1712421-DUP1  
1712421-SRM1  
1712421-SRM2  
SC37118-01 (Outfall 003)

### **1712432**

#### **Semivolatile Organic Compounds by GCMS**

1712432-BLK2  
1712432-BS2  
1712432-BSD2  
SC37118-01 (Outfall 003)

### **1712490**

#### **Volatile Organic Compounds**

1712490-BLK1  
1712490-BS1  
1712490-BSD1  
SC37118-01 (Outfall 003)

### **1712912**

#### **Extractable Petroleum Hydrocarbons**

1712912-BLK1  
1712912-BS1  
SC37118-01 (Outfall 003)

### **S703654**

#### **Semivolatile Organic Compounds by GCMS**

S703654-CAL1  
S703654-CAL2  
S703654-CAL3  
S703654-CAL4  
S703654-CAL5  
S703654-CAL6  
S703654-CAL7  
S703654-CAL8  
S703654-CAL9  
S703654-CALA  
S703654-CALB  
S703654-ICV1  
S703654-LCV1  
S703654-LCV2  
S703654-TUN1

### **S706141**

#### **Volatile Organic Compounds**

S706141-CAL1  
S706141-CAL2  
S706141-CAL3  
S706141-CAL4  
S706141-CAL5  
S706141-CAL6  
S706141-CAL7  
S706141-CAL8  
S706141-CAL9  
S706141-CALA  
S706141-CALB  
S706141-ICV1  
S706141-LCV1  
S706141-LCV2  
S706141-TUN1

### **S706463**

#### **Volatile Organic Compounds**

S706463-CCV1  
S706463-TUN1

### **S706689**

#### **Semivolatile Organic Compounds by GCMS**

S706689-CCV1  
S706689-TUN1